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TOWNSEND and TOWNSEND and CREW LLP

By:

PATENT

Attorney Docket No.: 18941H-002911US  
Client Ref. No.: B98-006-2

On 13 Aug. 2007By: Malinda C. Wajit

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of:

GOODMAN et al.

Application No.: 10/826,812

Filed: April 16, 2004

For: ROBO: A NOVEL FAMILY OF  
POLYPEPTIDES AND NUCLEIC  
ACIDS

Customer No.: 20350

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Confirmation No. 1573

Examiner: Olga N. Chernyshev, Ph.D.

Technology Center/Art Unit: 1649

DECLARATION UNDER 37 C.F.R. §  
1.131

We, Corey S. Goodman, Thomas Kidd, Kevin J. Mitchell, and Guy Tear were at the time of the invention employed by the Regents of the University of California, the assignee of the above-referenced patent application.

We are the co-inventors of the subject matter described and claimed therein.

We conceived of and reduced to practice the claimed invention in the United States prior to October 10, 1997. Attached Exhibit A provides evidence of the conception of the invention and its reduction to practice. The experiments described in Exhibit A were performed prior to October 10, 1997. This work was done by us, or under our supervision.

Exhibit A, with dates redacted therefrom, is a printout of laboratory records showing the amino acid sequence of human Robo-1. The raw sequence file data were saved to an optical disk. The pages in Exhibit A show a computer analysis of sequence data comparing

PATENT

Appl. No. 10/826,812  
Thomas Kidd, Ph.D.  
Declaration under 37 C.F.R. § 1.131

the human Robo-1 (H-Robo1 pep) sequence to those of other Robo proteins. The amino acid sequence was determined based on nucleic acid sequence. H-Robo1 pep includes the extracellular domain (five immunoglobulin domains and three fibronectin domains). Amino acids 68-167 of H-Robo1 pep are the first immunoglobulin domain and correspond to amino acids 68-167 of SEQ ID NO:8 in the application.

In view of the foregoing, we respectfully submit that the evidence provided in Exhibit A unequivocally establishes that the basic inventive concept of the claimed invention was conceived of and reduced to practice prior to October 10, 1997.

We further declare that all statements made herein of our knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that any such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated: \_\_\_\_\_

\_\_\_\_\_  
Corey S. Goodman

Dated: 8/13/07

Tom Kidd  
Thomas Kidd

Dated: \_\_\_\_\_

\_\_\_\_\_  
Kevin J. Mitchell

Dated: \_\_\_\_\_

\_\_\_\_\_  
Guy Tear

**Exhibit A**

M X - - H - - X L X X X X - - S X T X N H - - - - I P Majority

10 20 30  
M H P M H P E N H A I A R S T S T N N - - - - F D-Robo pep  
1 K W K H V P F L V M I S L L S L S P N H L F L A - Q L I P H-RoboI pep  
G - - - Y L G F Y H - - T H T H T Y I N F D K I P Predicted D-RoboII v2 pep  
Y - - - - Y L G F Y H - - T H T H T Y I N F D K I P U88183 composite pep

X X S X X - R - - - - N - L - - - Majority

40 50 60  
S R S R S S R M W L L P A W L L L V L V A S N G L - - - P D-Robo pep  
D P E D V E R G N D H G T P I P T S D N D D N S L G Y T G S H-RoboI pep  
N A S N L - - - - - - - - - - - - - - - - - - Predicted D-RoboII v2 pep  
- U88183 composite pep

- - R - - - X X P R I I E H P X D L V V S K G E P A T L N C Majority

70 80 90  
A V R G Q Y Q S P R I I E H F T D L V V K K N E P A T L N C D-Robo pep  
R L R Q E D F P P R I V E H P S D L I V S K G E P A T L N C H-RoboI pep  
- - - - - E N P R I I E H P M D T T V P K N D P F T F N C Predicted D-RoboII v2 pep  
- - - - - A P V I I E H F I D V V V S R G S P A T L N C U88183 composite pep

K A E G X P T P T I E W F K D G E P V X T N K - D X X S H R Majority

100 110 120  
K V E G K F E P T I E W F K D G E P V S T N - - E K K S H R D-Robo pep  
K A E G R P T P T I E W Y K G G E R V E T D K D D P R S H R H-RoboI pep  
Q A E G N P T P T I Q W F K D G R E L K T - - D T G S H R Predicted D-RoboII v2 pep  
G A K - P S T A K I T W Y K D G O P V I T N K E Q V N S H R U88183 composite pep

I X L P X G S L F F L K V X H G K - - K E S D A G X Y W C V Majority

130 140 150  
V Q F K D G A L F F Y R T M Q G K - - K E Q D G G E Y W C V D-Robo pep  
M L L P S G S L F F L R I V H G R K S R - P D E G V Y V C V H-RoboI pep  
I M L P A G G J F F L K V I H S R - - R E S D A G T Y W C E Predicted D-RoboII v2 pep  
I V L D T G S L F F L K V N S G K N G K D S D A G A Y Y C V U88183 composite pep

A K N E X G E A V S R N A S L Q V A V L R D D F R V E P X D Majority

160 170 180  
A K N R V G Q A V S R H A S L Q I A V L R D D F R V E P K D D-Robo pep  
A R N Y L G E A V S H N A S L E V A I L R D D F R Q N P S D H-RoboI pep  
A K N E F G V A R S R N A T L Q V A V L R D E F R L E P A N Predicted D-RoboII v2 pep  
A S N E H G E V K S N E G S L K L A M L R E D E F R V R P R T U88183 composite pep

V R V A X G E X A V L E C G P P R G X P E P T I S W R K D G Majority

190 200 210  
T R V A K G E T A L L E C G P P K G I P E P T L I W I K D G D-Robo pep  
V M V A V G E P A V M E C Q P P R G H P E P T I S W K K D G H-RoboI pep  
T R V A Q G E V A L M E C G A P R G S P E P Q I S W R K N G Predicted D-RoboII v2 pep  
V Q A L G G E M A V L E C S P P R G F P E P V V S W R K D D U88183 composite pep

Alignment Report of Untitled, using Clustal method with PAM250 residue weight table.

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with PAM250 residue weight table.

X P L D D - Q D M X - - - - R I T I V D G G N L X I X X V Majority

220 230 240

194 V P L D D L K A M S F G A S S R V R I V D G G N L L I S N V D-Robo pep  
209 S P L D D - K D - E - - - - R I T I R G - G K L M I T Y T H-RoboI pep  
141 - - - - Q T L N L V G N K R I R I V D G G N L A I Q E A Predicted D-RoboII v2 pep  
171 K E L R I - Q D M P - - - - R Y T L H S D G N L I I D P V U88183 composite pep

R X S D X G X Y Q C V A X N M V G T R E S X X A X L X V X V Majority

250 260 270

224 E P I D E G N Y K C I A Q N L V G T R E S S Y A K L I V Q V D-Robo pep  
231 R K S D A G K Y V C V G T N M V G E R E S E V A E L T V L E H-RoboI pep  
165 R Q S D D G R Y Q C V V K N V V G T R E S A T A F L K V H V Predicted D-RoboII v2 pep  
195 D R S D S G T Y Q C V A N N M V G E R V S N P A R L S V F E U88183 composite pep

K P X F X K E P K D Q T V X V G X S A X F X C R V G G D P X Majority

280 290 300

254 K P Y F M K E P K D O V M L Y G Q T A T F H C S V G G D P P D-Robo pep  
261 R P S F V K R P S N L A V T V D D S A E F K C E A R G D P V H-RoboI pep  
195 R E F L I R G P Q N Q T A V V G S S V V F Q C R I G G D P L Predicted D-RoboII v2 pep  
225 K P K F E Q E P K D M T V D V G A A V L F D C R V T G D E Q U88183 composite pep

P X V L W K K X X - - G N M P V S R A - - L H - - - - Y X Majority

310 320 330

284 P K V L W K K E E - - G N I P V S R A R I L H - - - - - D-Robo pep  
291 P T V R W R K D D - - G E L P K S K - - - - - Y E H-RoboI pep  
225 P D V L W R R T A S G G N M P L R K F S W L H S A S G R V H Predicted D-RoboII v2 pep  
255 P Q I T W K R K N - - E P M P V T R A - - - - - Y I U88183 composite pep

X X D D R S L K I X X V T P X D E G E Y V C E A X N X V G X Majority

340 350 360

305 - - D E K S L E I S N I T P T D E G T Y V C E A H N N V G Q D-Robo pep  
309 I R D D H T L K I R K V T A G D M G S Y T C V A E N M V G K H-RoboI pep  
255 V L E D R S L K L D D V T L E D M G E Y T C E A D N A V G G Predicted D-RoboII v2 pep  
274 A K D N R G L R I E R V Q P S D E G E Y V C Y A R N P A G T U88183 composite pep

I E A S A X L T V Q A P P X F V X K P X D Q X V X L G G T V Majority

370 380 390

333 I S A R A S L I V H A P P N F T K R P S N K K V G L N G V V D-Robo pep  
339 A E A S A T L T V Q E P P H F V V K P R D Q V V A L G R T V H-RoboI pep  
285 I T A T G I L T V H A P P K F V I R P K N Q L V E I G D E V Predicted D-RoboII v2 pep  
304 L E A S A H L R V Q A P P S F Q T K E A D Q S V P A G G T A U88183 composite pep

T F E C X A X G N P X P A X F W S K E G X S X L L F P S Y X Majority

400 410 420

363 Q L P C M A S G N P P P S V F W T K E G V S T L M F P N S S D-Robo pep  
369 T F Q C E A T G N P Q P A I F W R R E G S Q N L L F - S Y Q H-RoboI pep  
315 L F E C Q A N G H P R F T L Y W S V E G N S S L L L F G Y R Predicted D-RoboII v2 pep  
334 T F E C T L V G Q P S P A Y F W S K E G Q Q D L L F P S Y V U88183 composite pep

## Alignment Report of Untitled, using Clustal method with PAM250 residue weight table.

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|     |  |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |
|-----|--|---|---|---|---|---|---|---|---|---|-----|---|---|---|---|---|---|---|---|---|
|     | X G R X X V X - - V S X T G T L T I T X V R Q E D E G Y Y V Majority |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |
|     | 430  |   |   |   |   |   |   |   |   |   | 440 |   |   |   |   |   |   |   |   |   |
| 393 | H  | G | R | Q | Y | V | A | - | - | - | A   | D | G | T | L | Q | I | T | D | V |
| 398 | P  | P | Q | S | S | S | R | F | S | V | S   | Q | T | G | D | L | T | T | N | V |
| 345 | D  | G | R | M | E | V | T | L | T | P | E   | G | R | S | V | L | S | I | A | R |
| 364 | S  | A | D | G | R | T | K | - | - | V | S   | P | T | G | T | L | T | I | E | E |
|     | - C X A L N V A G S S X S K A X L X V - - - - - Majority             |   |   |   |   |   |   |   |   |   | 450 |   |   |   |   |   |   |   |   |   |
|     | 460  |   |   |   |   |   |   |   |   |   | 470 |   |   |   |   |   |   |   |   |   |
| 419 | -  | C | S | A | F | S | V | V | D | S | S   | T | V | R | V | F | L | Q | V | - |
| 428 | -  | C | Q | T | L | N | V | A | G | S | I   | I | T | K | A | Y | E | - | - | - |
| 375 | T  | C | N | A | L | N | A | V | G | S | V   | S | S | R | T | V | V | S | V | - |
| 392 | -  | C | A | G | M | N | S | A | G | S | S   | L | S | K | A | A | L | K | A | T |
|     | - - - - - Y L - - - V T D X X X E R Majority                         |   |   |   |   |   |   |   |   |   | 480 |   |   |   |   |   |   |   |   |   |
|     | 490  |   |   |   |   |   |   |   |   |   | 500 |   |   |   |   |   |   |   |   |   |
| 437 | -  | - | - | - | - | - | - | - | - | - | -   | - | - | - | - | S | S | V | D | E |
| 442 | -  | - | - | - | - | - | - | - | - | - | -   | - | - | - | - | E | V | T | D | V |
| 394 | -  | - | - | - | - | - | - | - | - | - | -   | - | - | - | - | - | D | T | Q | F |
| 421 | K  | S | K | M | G | K | Q | K | Q | K | N   | V | Q | S | I | I | K | Y | L | I |
|     | P P P I I E Q G P V N O T L P V G S X A V L P C R A T G X P Majority |   |   |   |   |   |   |   |   |   | 510 |   |   |   |   |   |   |   |   |   |
|     | 520  |   |   |   |   |   |   |   |   |   | 530 |   |   |   |   |   |   |   |   |   |
| 443 | P  | P | P | I | I | Q | I | G | F | A | N   | Q | T | L | P | K | G | S | V | A |
| 453 | P  | P | P | V | I | R | Q | G | F | V | N   | Q | T | V | A | V | D | G | T | F |
| 400 | P  | P | P | I | I | E | Q | G | P | V | N   | Q | T | L | P | V | K | S | I | V |
| 451 | P  | P | P | T | I | E | H | G | H | Q | N   | Q | T | L | M | V | G | S | S | A |
|     | V P X I S W X X D G X P V D X Q D - S R I S Q X X X G S L X Majority |   |   |   |   |   |   |   |   |   | 540 |   |   |   |   |   |   |   |   |   |
|     | 550  |   |   |   |   |   |   |   |   |   | 560 |   |   |   |   |   |   |   |   |   |
| 473 | S  | P | R | I | K | W | F | H | D | G | H   | A | V | - | - | Q | A | G | N | R |
| 483 | V  | P | T | I | L | W | R | K | D | G | V   | L | V | S | T | Q | L | - | S | R |
| 430 | V  | F | Q | V | S | W | Y | L | D | G | I   | P | I | D | V | Q | E | H | E | R |
| 481 | T  | E | G | I | S | W | L | R | D | G | L   | E | I | D | I | T | D | - | S | R |
|     | I X D L Q K L X D T G X Y T C I A S N E X G E S S W S A Y L Majority |   |   |   |   |   |   |   |   |   | 570 |   |   |   |   |   |   |   |   |   |
|     | 580  |   |   |   |   |   |   |   |   |   | 590 |   |   |   |   |   |   |   |   |   |
| 501 | V  | D | D | L | Q | - | L | S | D | S | G   | T | Y | T | C | T | A | S | G | E |
| 512 | I  | R | Y | A | - | K | L | G | D | T | G   | R | Y | T | C | I | A | S | T | P |
| 460 | I  | S | D | L | Q | R | H | E | D | E | G   | L | Y | T | C | V | A | S | N | R |
| 510 | I  | A | D | L | - | K | K | P | D | T | G   | V | Y | T | C | I | A | K | N | E |
|     | T V E X P G S P - X Q F X R A P D P S T Y P S P P G K P X V Majority |   |   |   |   |   |   |   |   |   | 600 |   |   |   |   |   |   |   |   |   |
|     | 610  |   |   |   |   |   |   |   |   |   | 620 |   |   |   |   |   |   |   |   |   |
| 530 | T  | V | E | K | P | G | S | T | S | L | H   | - | - | R | A | A | D | P | S | T |
| 541 | E  | V | Q | E | F | G | V | P | - | V | Q   | P | P | R | P | T | D | E | N | L |
| 490 | R  | L | D | T | P | T | N | P | N | I | K   | E | F | R | A | P | E | L | S | T |
| 539 | T  | V | E | D | H | T | S | N | - | A | Q   | F | V | R | M | P | D | P | S | N |



-----YXXVTVXXXPAXSSXVVX Majority

712 850 860 870

723 - - - - - SAQYHSITVMDASAESF-VVG D-Robo pep

719 SGGGAPTPLNTK YRMLTILNGGGASSCTIT H-RoboI pep

726 - - - - - QYV-NVTSSTENYVVS Predicted D-RoboII v2 pep

NLXKYTNYEFFXXPF - - - FXSIEGAPSNSSK U88183 composite pep

880 890 900 Majority

732 NLKKYTKYEFFFLTPF - - - FETIEGQPSNSK D-Robo pep

740 DLRKG VNYEIKARPF - - - FNEFQ GADSEIK H-RoboI pep

749 GLVQY:TL YEFFIVPF - - - YKSVEGKPSNSR Predicted D-RoboII v2 pep

742 NLMPPFTNYEFFVIPYHSGVHSIHGAPSNSSM U88183 composite pep

XALTLEDVPSAPPXGVXIXMLN - - XTAXXV Majority

910 920 930

759 TALT YEDVPSAPPDNIQIGMYN - - QTAGWV D-Robo pep

767 FAKTLEEAPSAPPQGVTVSKNDGNGTATLV H-RoboI pep

776 IARTLEDVPS EAPY GMEALLLN - - SSAVFL Predicted D-RoboII v2 pep

772 DVLTAEAPPSLPPEDEVRI RMENL - - TTLRI U88183 composite pep

SWKAPPXDXNXGXLXGYKVXVXGXXTXXN - Majority

940 950 960

787 RWT PPF SQHHNGNLYGYKIEVSAGNTM - - D-Robo pep

797 SWOPPPEDTQNGMVQEYKVWCLGNETRYH - H-RoboI pep

804 KWKAP ELKDRHGVLLNYHVIVRGIDTAHNF Predicted D-RoboII v2 pep

800 SWKAPKADGINGILKGFQIVIVGQAPNNN - U88183 composite pep

- - - LXNXTXDAXTXSVV LXLNLTGTGXXYSVR Majority

970 980 990

814 - KVL ANMTL NATTTSV L INNLTTGAVYSVR D-Robo pep

826 - - - - INKTV D GSTFS VVIPFLVP GIRYSVE H-RoboI pep

834 SRI LTNVTIDAASPTLVLANLT EGVMYTVG Predicted D-RoboII v2 pep

829 - - - - RNIT TNERAASVTLFHLVTGMTYKIR U88183 composite pep

VAAXTNAGVGGVYSXPXXLXLDP - T - - - PX Majority

1000 1010 1020

843 LNSFTKAGDGPYSKPI S LFM DP - THHVHHP D-Robo pep

852 VAA STGAGSGVKSE PQFIQLD - - - - - A H-RoboI pep

864 VAA GNNAGVG GPYCV PATLRLDPI TKRLDPE Predicted D-RoboII v2 pep

855 VAA RSN GGVGV - - - - - S U88183 composite pep

HGX PXXXXDQXXLXQXLX XXXN XXXXFX XGI Majority

1030 1040 1050

872 RAHPSGTHDGRHEGQD LTYHNNGNIPPGDTI D-Robo pep

874 HG N P VSPEDQVSLAQQISDVVKQPAFIAGI H-RoboI pep

893 - - - - - F I N Q - - - - - Predicted D-RoboII v2 pep

867 HGTSEVIMNQD TLEKH LAAQQENESFLYGL U88183 composite pep



## Alignment Report of Untitled, using Clustal method with PAM250 residue weight table.

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XXXXH--VXDXXVXXPWL-----XIL Majority  
1060 1070 1080

902 NPTTHKKTTHYLSGFWL-----MVL D-Robo pep  
904 GAACW--IILMVFSIWLRYHRKKRNGLTST H-RoboI pep  
897 ---RDHVNVDVLTQPF-----IIL Predicted D-RoboII v2 pep  
897 INKS--VPVIIV-----AILI U88183 composite pep

XXXXILXVLXXSFX-XMVYXKRKHXM SKGX Majority  
1090 1100 1110

922 VCIIVLVLVISAAISMVYFKRKHQMTKE-- D-Robo pep  
932 YAGIRKVPSFTFTPTVTYQRGGEAVSSGGR H-RoboI pep  
913 LGAILAVLMLSFG-AMVVFVKRKHMMMKOSA Predicted D-RoboII v2 pep  
914 FVVI--IIAYCY-----WRNSRNSDGD U88183 composite pep

LGLXIXINXXSXXXXXXXXLWXNXGNXXW--X Majority  
1120 1130 1140

950 LGHLSVVSDNEI---TALNINSKESLW--I D-Robo pep  
962 PGLLNISEPAAQPWLADTWPNNTGNHNDCS H-RoboI pep  
942 LNTMRGNHTSDVLKMPSSLARNNGNGYW--L Predicted D-RoboII v2 pep  
935 RSFIKINDGSVHMASNNLWDVAQNPNQNP M U88183 composite pep

DSXXGXMXWNXXGXGXXYSLSLXXDXIAXYNN Majority  
1150 1160 1170

975 DHHRG---WRTADTDKDSGLSESKL--- D-Robo pep  
992 ISCCTAGNGNSDSNLTTYSRPADCIANYN N H-RoboI pep  
970 DSSTGGMVWRPSPGGDSLEMQKDHIADYAP Predicted D-RoboII v2 pep  
965 YNTAGRM TMNNRNGQALYSLTTPNAQDFNN U88183 composite pep

XXDXXGSXXXXGX SX-YGGXDLAGXXXXNXM Majority  
1180 1190 1200

997 LSHVNSSQSNYNNSD--GGTDYAEVDTRNL D-Robo pep  
1022 QLDNKQTNLMLPESTVYGDVDLSNKI-NEM H-RoboI pep  
1000 VCGAPGSPAGG GTSS--GGSGGAGSGASGG Predicted D-RoboII v2 pep  
995 CD DYS GTMHRPGESEHHYHYAQLTG GP G NAM U88183 composite pep

XTFYGXX--D---XSXXNFTPYATT-L-X Majority  
1210 1220 1230

1025 TTFYNCR-----KSPDNPTPYATT--M D-Robo pep  
1051 KTFNSPNLK DGRFVNPSGQPTPYATTQLIQ H-RoboI pep  
1028 DDIHG GH-----GSE RNQQRVVG E--Y Predicted D-RoboII v2 pep  
1025 STFYGNQYHD-----DPSPYATTTLVL U88183 composite pep

SNIXTXXXXXSX--KXP-W-SXXXXKXXXXX Majority  
1240 1250 1260

1045 I-IGTSSSETCT--KTT--SISADKDSGT D-Robo pep  
1081 SNLSNNMNNNGSGDSGEKH WKPLGQQKQEVA H-RoboI pep  
1048 SNIP TDYAEVS SFGKAF--SEYGRHGNAS Predicted D-RoboII v2 pep  
1047 SN-----QQPAW----- U88183 composite pep

## Alignment Report of Untitled, using Clustal method with PAM250 residue weight table.

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P X P Y X - - - - L - - D A X X X X P V P P X P P X X X Majority
      1270          1280          1290
1069 H S P Y S - - - - - D A - F A G Q V P A V P V V K S D-Robo pep
1111 P V Q Y N I V E Q N K L N K D Y R A N D T V P P T I E Y N Q H-RoboI pep
1075 P A P Y A - - - - - T S S I L S P H Q Q Q Q Q Q Q P Predicted D-RoboII v2 pep
1054 - - - - - L N D K M I R A P A M P T N P V P P E P P - - A U88183 composite pep

R Y X Q X T X G X Y X X S X R - S - - - G - - - - Majority
      1300          1310          1320
1089 N Y L Q - - - - - Y P V E P - - - - - D-Robo pep
1141 S Y D Q N T G G S Y N S S D R G S S T S G S Q G H K K G A R H-RoboI pep
1096 R Y Q Q R P V P G Y G L Q R - - - - - Predicted D-RoboII v2 pep
1076 R Y A D H T A G R R S R S S R A S D G R G T L - - - - U88183 composite pep

- - - - - G G X N W X X X L P P P P X H P P P X S T X X Majority
      1330          1340          1350
1098 - - - - - I N W S E F L P P P P E H P P P S S T Y G D-Robo pep
1171 T P K V P K Q G G M N W A D L L P P P P A H P P P H S N S E H-RoboI pep
1110 - - - - - P M H P H Y Q Q Q Q H Q Q Q Q A Q Q T H Q Predicted D-RoboII v2 pep
1099 - - - - - N G G L H - - - - - U88183 composite pep

- - - - - Y X Q X X P - - - - - Majority
      1360          1370          1380
1119 - - - - - Y A Q G S P - - - - - D-Robo pep
1201 E Y N I S V D E S Y D Q E M P C P V P P A R M Y L Q Q D E L H-RoboI pep
1131 - - - - - Q H Q A L Q - - - - - Predicted D-RoboII v2 pep
1104 - - - - - - - - - - - - - - - U88183 composite pep

- - - E X X R X S X S X X R S X X S T X X X V S Y X X X H S Majority
      1390          1400          1410
1125 - - - E S S R K S S K S A G S G I S T N Q S I L N A S I H S D-Robo pep
1231 E E E E D E R G P T P P V R G A A S S P A A V S Y S H Q S T H-RoboI pep
1137 - - - Q H Q Q L P P S N I Y Q Q M S T T S E I Y P T N T - G Predicted D-RoboII v2 pep
1104 - - - - H R T S G S Q - R S D S P P H T D V S Y V Q L H S U88183 composite pep

S S X T G S S X E X - - P Q Y X - - C P X E T G X X X H X P Majority
      1420          1430          1440
1152 S S S G G F S A W G V S P Q Y A V A C P P E N V Y S N P L S D-Robo pep
1261 A T L T P S P Q E E L Q P M L Q - D C P E E T G H M Q H Q P H-RoboI pep
1163 P S R S V Y S E - - - - Q Y Y - - Y P K D K Q R H I H I T Predicted D-RoboII v2 pep
1128 S D G T G S S K E R - - - - - T G E R R T P P U88183 composite pep

X X X L - - - - P P P P - - P - - P P X X H X Y X X A P - - Majority
      1450          1460          1470
1182 A V A G - - - - - G T Q N R Y Q I T P - - D-Robo pep
1290 D R R R Q P V S P P P P P R P I S P P H T Y G Y I S G P L V H-RoboI pep
1186 E N K L - - - - - S N C H T Y E A A P - - Predicted D-RoboII v2 pep
1146 N K T L M D F I P P P P S N F - P P P G G H V Y D T A - - U88183 composite pep

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## Alignment Report of Untitled, using Clustal method with PAM250 residue weight table.

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-----X X X X X X X X X X F A X T R R Q L L R Majority
          1480          1490          1500
1196 -----T N Q H P P Q L P A Y F A T T ----- D-Robo pep
1320 S D M D T D A P E E E E D E A D M E V A K M Q T R R L L L R H-RoboI pep
1200 -----G A K Q S S P I S S Q F A S V R R Q Q L L Predicted D-RoboII v2 pep
1172 -----T R R Q L N R U88183 composite pep

G -----X P X X S V G -----S - P E Majority
          1510          1520          1530
1211 -----G P G G A V P -----P N D-Robo pep
1350 G L E Q T P A S S V G D L E S S V T G S M I N G W G S A S E H-RoboI pep
1220 -----P P N C S I G -----R E Predicted D-RoboII v2 pep
1179 G -----S T P R U88183 composite pep

E D X F X S X R X X X S X S D G X L ----- Majority
          1540          1550          1560
1220 H L P F A T Q R H A A S E Y Q A G L ----- D-Robo pep
1380 E D N I S S G R S S V S S S D G S F F T D A D F A Q A V A A H-RoboI pep
1229 S A R E K V L N T D Q G K N Q Q N L L ----- Predicted D-RoboII v2 pep
1184 E D T Y D S V -----S D G A F ----- U88183 composite pep

-----X A A -----X C X X Majority
          1570          1580          1590
1238 -----N A A -----R C A Q D-Robo pep
1410 A A E Y A G L K V A R R Q M Q D A A G R R H F H A S Q C P R H-RoboI pep
1248 -----D L D G S S -----M C Y N Predicted D-RoboII v2 pep
1196 -----U88183 composite pep

X X A X X S C D - - X S P S P M Q - - - - - Majority
          1600          1610          1620
1245 S R A C N S C D A L A T E S P M Q ----- D-Robo pep
1440 P T S P V S T D S N M S A A V M Q K T R P A K K L K H Q P G H-RoboI pep
1258 G L A D S G C G - - G S E S E M A ----- Predicted D-RoboII v2 pep
1196 -----U88183 composite pep

-----X P P P X X X P X A X Y X P X X X X X X Majority
          1630          1640          1650
1262 -----P P P P V P V P E G W Y Q P V H P N S H D-Robo pep
1470 H L R R E T Y T D D L P P P P V P P P A I K S E T A Q S K T H-RoboI pep
1273 -----M L M S H E D E H A L Y H T A D G D L D Predicted D-RoboII v2 pep
1196 -----A R V U88183 composite pep

D M E X R P - - - X X Y X X X D E - T D R S R X X - G - - - Majority
          1660          1670          1680
1282 P M H P T S S N H Q I Y Q C S S E C S D H S R S S ----- D-Robo pep
1500 Q L E V R P V V V P K L P S M D A R T D R S S D R K G S S Y H-RoboI pep
1293 D M E - - - - R L Y V K V D E - - - - Q - - - - Predicted D-RoboII v2 pep
1199 D V N A R P - - - - - - - - - T S R N R N L G G R P L U88183 composite pep

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GRXXXXXXXXXXD-PXXEXXLXEXXXLXY-- Majority

PRDXXSRRXXXC SG SXGXXL Majority

XX - - - - - E S G E X N N X Q X T X X Majority

NT

### Majority

Decoration 'Decoration #1': Shade (with solid black) residues that match the Consensus exactly.